

Docket 222

FEDERAL COMMUNICATIONS COMMISSION  
WASHINGTON, D.C. 20554

EX PARTE OR LATE FILED

5 MAR 1992

IN REPLY REFER TO:

CN9200544

Honorable Phil Gramm  
United States Senate  
370 Russell Senate Office Bldg.  
Washington, D. C. 20510-4302

92-9 /

RECEIVED

MAR 6 - 1992

Dear Senator Gramm:

Federal Communications Commission  
Office of the Secretary

Thank you for your letter concerning the Commission's proposals to allocate spectrum for emerging technologies, which includes personal communications services (PCS). Your constituent, Mr. Nick Flores, Manager of the Operations Department of City Public Service of San Antonio, expressed concern regarding the cost of relocating electric and gas utility licensees operating at 2 GHz.

On January 16, 1992, the Commission adopted a Notice of Proposed Rule Making (Notice) in ET Docket No. 92-9 that proposes allocating 220 MHz of spectrum at 2 GHz for use by new services and technologies. The Office of Engineering and Technology has developed a fact sheet which outlines this proposal. I have enclosed a copy for your information. In addition, because there has been some confusion about how this proposal would impact public safety agencies, I have enclosed a fact sheet which describes how those agencies would be affected by certain spectrum policies currently under consideration.

Briefly, under the Commission's proposal, state and local government licensees, including public safety agencies, would indefinitely continue their current operations on a primary basis. Other existing licensees would be permitted to continue their current operations on a primary basis for a period of time to be established - such as 10 or 15 years. Subsequently, they would be permitted to continue operating only on a secondary basis. Expansion and new microwave systems would be permitted on a primary basis only at higher frequencies. In conjunction with the Notice, the Commission released a staff study of existing use of this spectrum and identified other suitable frequencies available for this purpose. To further facilitate accommodation of the competing demands for this spectrum, the Commission also proposed to permit negotiation of financial arrangements between existing licensees and parties proposing new services. Such an approach would facilitate access to this spectrum for services employing emerging technologies.

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These provisions are intended to prevent disruption to the communications of the existing licensees, yet still provide the spectrum needed by U.S. companies to develop new and innovative telecommunications products and services and bolster U.S. competitiveness in world telecommunications markets. An example of one such new proposed service is the personal communications service (PCS), which the Commission is addressing concurrently in GEN Docket No. 90-314.

The needs of the existing 2 GHz users are of importance to the Commission, and are being taken carefully into consideration. Please be assured that Mr. Flores' concerns will be taken into account before a final determination is made in this matter. For that purpose, I am making his letter part of the record in the two dockets discussed above, ET Docket No. 92-9 and GEN Docket No. 90-314.

Sincerely,

A handwritten signature in cursive script, reading "Thomas P. Stanley".

Thomas P. Stanley  
Chief Engineer

Enclosures

## ACTIVITIES AFFECTING STATE AND LOCAL GOVERNMENT SPECTRUM

### Emerging Technology Band Proposal

- o In January 1992, the FCC proposed to reallocate 220 MHz of the 2 GHz frequency band. The FCC proposed that this 220 MHz be used for new emerging technologies. Such new services could include:
  - Personal Communications Services and Networks (PCS & PCN)
  - Low Earth Orbit (LEO) Satellite Services
  - Wireless Computer Networking
  - Digital Audio Broadcasting
- o FCC proposal is consistent with international activity looking at this frequency band for future advanced mobile services. Countries in Europe and Asia plan to use 2 GHz spectrum for new technologies, such as PCS.
- o FCC proposal would encourage U.S. competitiveness and the domestic development of new services and technology by making available new spectrum for such uses.
- o Impact on State and Local Governments- Existing 2 GHz microwave spectrum is currently used by a wide variety of entities and businesses to provide point-to-point communications services. State and local government entities, including public safety, have significant operations in this band. State and local government licensees represent about 20% of the users of this spectrum. To ensure that these operations would not be harmed, the FCC proposed that:
  - All existing state and local government operations, including public safety, be exempted from any mandatory move to higher frequencies.
  - Such operations can continue to operate indefinitely and would be protected from interference from any future new technology operations.

### License Fees For State and Local Government

- o Impact on State and Local Governments- None. Public safety licensees are exempted from all FCC processing fees (Omnibus Budget Reconciliation Act (1989), Section 1.1112(b) of the FCC Rules).

### Congressionally Initiated Spectrum Bills

- o Impact on State and Local Governments- None. Spectrum bills [H.R. 531, S. 2904 (Dingell, Inouye)] would reallocate spectrum from Federal government use to non-Government use. While public safety licensees have raised concern with the bills, the bills do not affect public safety licensees.

## FCC PROPOSAL FOR EMERGING TECHNOLOGY BANDS AT 2 GHZ

**PURPOSE:** To present the FCC proposal to reallocate spectrum for emerging technologies.

**BACKGROUND:**

- o On January 16, 1992, the FCC proposed to reallocate 220 MHz of spectrum at 2 GHz from fixed microwave service to new emerging technologies.
  - Final rules will be addressed by FCC after consideration of comments that can be filed until May 21, 1992.
  - The spectrum is currently used to provide point-to-point communications for a variety of services, such as utilities, railroads, public service (including public safety), businesses, and cellular telephone.
  - Emerging technology services could include new mobile services and mobile-satellite services:
    - \* Personal Communications Services (PCS) and Networks (PCN)
    - \* Mobile-Satellite Services, including Low Earth Orbit (LEO) Satellite Systems
    - \* Wireless Computer Networks (Data PCS)
- o Growing demand from U.S. companies to develop new, innovative technologies and services has put great pressure on FCC for suitable spectrum:
  - Current requests at FCC seen for up to 400 MHz for new emerging technology.
  - Additional allocations of 800 MHz for expansion of existing services envisioned.
- o Other countries are allocating large blocks of spectrum around 2 GHz for new mobile services and emerging technologies in order to foster their domestic manufacturing.
  - Japan has allocated 100 MHz and is considering an additional 400 MHz.
  - U.K has allocated 174 MHz.
  - The European Community is considering allocating up to 320 MHz.
- o The 2 GHz band is the best band for the new mobile technologies and services.
  - 2 GHz is where state-of-the-art mobile communications are being developed internationally.
  - 2 GHz fixed microwave band is the only band that is available for development of new mobile services.
    - \* Lower bands are heavily used by services (such as broadcast TV) that can not be relocated to higher bands.
    - \* Higher bands are limited by current technology that will not allow for commercial development of electronics for mobile technologies.
- o The 2 GHz fixed microwave operations may relocate in any of over a half-dozen higher fixed microwave bands.
  - These bands provide sufficient capacity to reaccommodate existing 2 GHz operations.
  - Intermediate sites will generally not be required.
  - Systems of comparable or higher reliability can be designed in the higher bands

- through common engineering practices.
- The cost of relocating existing 2 GHz operations does not present an economic barrier to relocation. (See proposal)

#### FCC PROPOSAL:

- o Current 2 GHz microwave users would be permitted to negotiate during a transition period financial and other arrangements with new service providers to assist in the relocation to new frequencies. Marketplace negotiations would encourage a timely transfer of spectrum and could permit current users to modernize their equipment and move to other microwave spectrum at no financial cost to themselves. (Existing public service users, including public safety, would continue undisturbed indefinitely, but would be permitted to negotiate a transfer, if they choose.) FCC is considering three alternative transitions:
  - Fixed Transition: One alternative would be to permit current microwave users to operate on a co-primary basis for a lengthy transitional time period during which the negotiations could occur; FCC proposed 10 or 15 years.
  - Phased Transition: Another approach might be to adopt a phased allocation in which blocks of frequencies would be made available for new services at intervals (e.g., 50 MHz every five years).
  - Unlimited Transition: An alternative would be to permit existing users to continue to operate on a co-primary basis indefinitely while permitting negotiations for the use of the spectrum.
- o New emerging technology services would be permitted access to the 2 GHz bands only on the condition that they not interfere with current fixed microwave operations during the transition.
- o FCC proposes to waive eligibility restrictions to permit easier relocation of existing 2 GHz users to higher fixed microwave bands.
- o Expansion of existing microwave systems or introduction of new microwave systems at 2 GHz would be permitted only on the condition they not cause interference to new services; of course, new microwave systems or expansion of existing systems at higher microwave bands is encouraged without conditions.
- o After the transition period all 2 GHz microwave operations, except public service (public safety) which is permitted to remain unconditionally, would be allowed to remain in the band on the condition that they protect new services. (This permits, for example, microwave systems to operate indefinitely in rural areas where we would not expect great demand for many of the new services.)
- o FCC has also requested comment on the possibility of making available for relocation purposes government spectrum adjacent to the proposed 2 GHz band.

Phil Gramm  
Texas

United States Senate

MEMORANDUM

Date:

4/17/92

My constituent has sent me the enclosed communication, and I would appreciate a response which addresses his/her concerns.

Please send your response, together with the constituent's correspondence, to me at the following address:

Office of Senator Phil Gramm  
370 Russell Senate Office Building  
Washington, D.C. 20510-4302

Attention:

Dan Parker

DE 7  
90-314

544



**City Public Service**  
of  
San Antonio, Texas

January 6, 1992

*The Honorable Phil Gramm  
United States Senate  
Russell Building, Room 370  
Washington, D.C. 20510*

RECEIVED  
JAN 14 2 43 PM '92  
LEGISLATIVE AFFAIRS

*RE: Proposed re-allocation of the 1850-2200 MHz (2 GHz) band*

*Dear Senator Gramm:*

*The Federal Communications Commission, on October 25, 1991, issued a Policy Statement and Order expressing its intention to re-allocate the radio frequency spectrum in the 2 GHz band for Personal Communications Networks (PCN).*

*This issue is critical to the Electric and Gas Utilities nationwide because of the vital information carried on some 3,700 microwave stations in the 2 GHz frequency band. The following is a brief description of the nature of this information:*

- . Protective relaying -- the ability to remotely detect and isolate electric transmission lines experiencing "fault" (outage) situations, within milliseconds.*
- . Forwarding of critical supervision and remote control data between and among a utility's substations, operations control centers, generating stations and other utilities.*
- . Controlling mobile radio base stations and other radio systems used for load control, environmental monitoring, and nuclear plant communications.*
- . Long and medium-haul remote data/voice communications.*

*A re-allocation of the 2 GHz microwave band would cost the citizens of San Antonio over \$400,000. For all users to change to another radio frequency band would place a needless burden of over \$4 billion on consumers.*

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*In addition to finances, right-of-ways, reliability, and a replacement spectrum for existing users are just a few of the major issues that will need to be resolved. Please review the enclosed report from the Utilities Telecommunications Council for a better understanding of these issues, and note that Texas is second only to California in the number of stations currently using these frequencies.*

*The times we live in demand fiscal restraint and the best utilization of resources from every sector of our economy. Please oppose any action the FCC might take to clear the 2 GHz frequency spectrum for PCN interests at the expense of our nation's public and private utilities.*

*Thank you for your consideration on this very important issue.*

*Sincerely,*

A handwritten signature in cursive script that reads "Nick Flores, P.E.".

Nick Flores, P. E.  
Manager  
Operations Department

NF:am

Enclosure



**EXECUTIVE SUMMARY  
OF THE FCC'S DUAL THREAT  
TO THE 2 GHz MICROWAVE BAND**

**I. Background**

**A. What is the "2 GHz Microwave" Band?**

- . The 2 GHz microwave band is a portion of the radio spectrum located in the 1850-2200 MHz (1.85-2.2 GHz) band that has been allocated by the Federal Communications Commission (FCC) for use by point-to-point microwave systems.

**B. How Do Utilities Use Microwave?**

- . Protective relaying -- the ability to remotely detect and isolate electric transmission lines experiencing "fault" (outage) situations, within milliseconds.
- . Forwarding of critical telemetry data between and among a utility's substations, operations control centers, generating stations and other utilities.
- . Controlling mobile radio base stations and other radio systems used for load control, environmental monitoring, and nuclear plant communications.
- . Long and medium-haul remote data/voice communications.

**C. Who Else Uses the 2 GHz Microwave Band?**

- . Other users of the band include the petroleum, railroad, telephone and broadcast industries as well as state and local governments.

**II. What is the FCC's "Dual Threat" to the 2 GHz Band?**

**A. Threat One: the FCC's PCN Inquiry**

- . On October 25, 1991, the FCC issued a Policy Statement and Order expressing its intention to allocate spectrum in the 2 GHz band for Personal Communications Networks (PCN), an advance cellular telephone service commencing in 1992. A Rulemaking proceeding would have to be commenced before spectrum could be allocated to PCN.

**B. Threat Two: the FCC's "Spectrum Reserve" Inquiry**

- . The FCC's Office of Engineering and Technology (OET), is studying the technical feasibility of "clearing" the

2 GHz band of its existing users to create a "reserve" of spectrum for "emerging technologies," e.g., PCN.

- . The OET study is to be completed by the end of November 1991. A Proposed Rulemaking to "clear" the 2 GHz band is expected by the end of 1991.
- . OET has indicated it plans on "clearing" the 2 GHz band in the major urban areas within 3 years and have the entire band "cleared" within 10 years.

C. Does the FCC's PCN Policy Statement and Order Negate the Spectrum Reserve Threat?

- . No, the spectrum reserve inquiry still has a life of its own. The FCC may decide to allocate a portion of the 2 GHz band to PCN as a result of its PCN Inquiry, and then clear the remainder of the 2 GHz band as a spectrum reserve for other "emerging technologies."

D. Does the Fact That Europe and Japan Are Advocating a World Wide Allocation of the 2 GHz Band for PCN at the 1992 World Administrative Radio Conference "Tie" the FCC's Hands?

- . No, the band is currently available in the Western hemisphere for both fixed and mobile licensing on a co-primary basis, and the official U.S. position is that it should remain this way. There is no need to allocate the entire 2 GHz band to land mobile, at most a sliver of spectrum would be sufficient to accommodate international roaming.

III. What Effect Would Loss of the 2 GHz Band Have on Utilities and Other Users?

A. What is the Total Amount of Equipment in this Band?

- . Nationwide, there are about 20,000 2 GHz stations.

C. What are the Costs of "Clearing" this Band?

- . At an average cost of \$200,000 per station to relocate a 2 GHz microwave station to other, higher frequency bands or to fiber, the loss of the 2 GHz band would cost utilities, alone, close to \$800 million in equipment purchases and operational transition costs.
- . Nationwide, the cost of clearing this band of the estimated 20,000 stations would be in the billions.

D. Why Can't Utilities Simply Use Another Medium?

### Other Microwave Bands

- . Higher frequency microwave bands are less reliable than 2 GHz systems, are already heavily congested and may not accommodate all existing 2 GHz users, and require more "hops" (towers), causing increased expense.

### Fiber Optics

- . More expensive than microwave for low capacity needs, a continuous right-of-way is needed between end points, and alternate routing is required for redundancy.

### Satellite

- . The utility loses complete control over the entire communications link, and satellite's delays and rain outages are unacceptable for protective relaying.

### Common Carrier Circuits

- . The utility lacks complete control over the entire communications link, and common carrier is less reliable than private microwave systems, and often do not offer all of the services required by utilities.

## IV. UTC's Position

- A. If there is a real need for PCN or a "spectrum reserve" for emerging technologies, the FCC should select other bands where the impact on such a large number of existing stations would not be as severe.
- B. Before the FCC decides to allocate spectrum for PCN or a spectrum reserve in any band, the following questions must be answered:
  - 1. Is there adequate replacement spectrum to which the existing users can be relocated?
  - 2. Since PCN is expected to develop, if at all, only in the major urban areas, why should incumbent users nationwide be forced to vacate the band, rather than allowing them to remain in the band on a co-equal, co-primary basis with PCN?
  - 3. Who is going to pay the expense of relocating the existing users to another frequency or other communications medium?
  - 4. Has a reasonable time period been provided to make the transition to another frequency or other communications medium?



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## BASIS FOR IMPACT/COST ESTIMATES

### I. The UTC Executive Summary Contains the Statement That:

[T]he loss of the 2 GHz band would cost utilities, alone, close to \$800 million in equipment purchases and operational transition costs.

### II. Basis for Cost Estimates:

- A. In a 1990 UTC survey of electric, gas and water utilities operating stations in the 1.85-2.20 GHz band, each licensee was asked:

If you could no longer use the 1.8 or 2.1 GHz bands, what would be the total cost (for engineering, installation, site acquisition, equipment, etc.) to install replacement facilities or to obtain substitute service?

- B. 142 utilities responded to the survey, collectively operating about 2,600 microwave stations in this band:
1. Aggregate cost for these survey respondents to replace their stations with other facilities or services -- about \$577 million.
  2. Average per station relocation cost -- about \$220,000.
- C. Based on UTC's review of FCC licensing records, there are about 3,700 utility-owned microwave stations in the 1.85-2.20 GHz band.
- D. Therefore, the total cost to relocate all utility-owned microwave stations would be over \$800 million (i.e., \$220,000 x 3,700).
- E. With over 20,000 microwave stations licensed in the 1.85-2.20 GHz band, the cost to relocate all users from the band would be well over \$4 billion.
- F. See Reverse for State by State Relocation Costs

# COST TO RELOCATE 2 GHZ MICROWAVE STATIONS

<u>STATE</u>	<u>NUMBER OF STATIONS</u>	<u>COST TO RELOCATE</u>
Alabama	323	\$65 Million
Alaska	322	\$64 Million
Arizona	561	\$112 Million
Arkansas	364	\$73 Million
California	2,241	\$448 Million
Colorado	629	\$126 Million
Connecticut	93	\$19 Million
Delaware	21	\$4 Million
District of Columbia	31	\$6 Million
Florida	850	\$170 Million
Georgia	443	\$89 Million
Hawaii	158	\$32 Million
Idaho	241	\$48 Million
Illinois	534	\$107 Million
Indiana	310	\$62 Million
Iowa	275	\$55 Million
Kansas	275	\$55 Million
Kentucky	369	\$74 Million
Louisiana	754	\$151 Million
Maine	93	\$19 Million
Maryland	172	\$34 Million
Massachusetts	136	\$27 Million
Michigan	282	\$56 Million
Minnesota	392	\$78 Million
Mississippi	165	\$33 Million
Missouri	505	\$101 Million
Montana	238	\$48 Million
Nebraska	295	\$59 Million
Nevada	384	\$77 Million
New Hampshire	64	\$13 Million
New Jersey	100	\$20 Million
New Mexico	600	\$120 Million
New York	655	\$131 Million
North Carolina	349	\$70 Million
North Dakota	173	\$35 Million
Ohio	430	\$86 Million
Oklahoma	318	\$64 Million
Oregon	414	\$83 Million
Pennsylvania	676	\$135 Million
Rhode Island	44	\$9 Million
South Carolina	198	\$40 Million
South Dakota	159	\$32 Million
Tennessee	257	\$51 Million
Texas	2,215	\$443 Million
Utah	400	\$80 Million
Vermont	46	\$9 Million
Virginia	411	\$82 Million
Washington	568	\$114 Million
West Virginia	146	\$29 Million
Wisconsin	348	\$70 Million
Wyoming	354	\$71 Million